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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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7590

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EXAMINER

JACKSON, CORNELIUS H

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 04/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/635,968

Applicant(s)

BOTEZ ET AL.

Examiner

Cornelius H. Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-21 and 23-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-21 and 23-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 01 March 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Acknowledgment

1. Acknowledgment is made that applicant's Amendment, filed on 01 March 2002, has been entered. Upon entrance of Amendment, claims 1-12 and 22 have been cancelled and claim 13 has been amended. Claims 13-21 and 23-43 are now pending in the application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13-21 and 23-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 13-21 and 23-43 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: a) how the upper and lower cladding layer surround the active layer, b) what is considered to be upper, lower and edge faces and c) where are the electrodes and distributed feedback

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grating positioned within the structure. Claims 14-21, 23-26 and 28-43 are rejected for depending on indefinite claim 13 or 27.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 13-14, 17-18 and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinoshita (4958357). Kinoshita teaches a surface emitting semiconductor laser **Figs. 6a-c** comprising a semiconductor substrate **1**, an epitaxial structure on the substrate including a layer with an active region **4** at which light emission occurs, upper **5** and lower **3** cladding layers surrounding the active layer **4**, upper and lower faces, edge faces **12**, with both of the edge faces formed to be antireflective **col. 9, lines 45-48**, and electrodes **11, 21** by which voltage can be applied across the epitaxial structure and the substrate **1**; and a distributed feedback grating **2** incorporated with the epitaxial structure comprising periodically alternating grating elements to provide optical feedback as a second order grating for a selected effective wavelength of light generation from the active region **4**, the grating having a spacing **10** between adjacent grating elements at a position intermediate the edge faces **12** that corresponds to a selected phase shift in the grating **c I. 9, lines 65-68**, the grating

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formed and positioned to act upon the light generated in the active region to produce lasing action and emission of light from at least one of the upper and lower faces of the semiconductor laser, **see col. 1, lines 13-42, col. 7, lines 20-51 and col. 4 line 38-col. 10, line 63.**

In regard to claims 14 and 18, Kinoshita discloses stated limitation, **see claim above.**

In regards to claim 17, Kinoshita discloses stated limitation, **see col. 7, lines 39-42.**

In regards to claim 23, Kinoshita discloses stated limitation, **see col. 1, lines 30-33 and col. 9, lines 65-68.**

In regard to claims 24 and 26, Kinoshita discloses stated limitation, **see col. 11, lines 1-33.**

In regards to claim 25, Kinoshita discloses stated limitation, **see col. 11, lines 34-40.**

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 15-16, 19-20 and 27-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurobe et al. (5432812) in view of Kinoshita (4958357).

9. Regarding claim 27, Kurobe et al. teach a surface emitting semiconductor laser **Fig. 14** comprising a semiconductor substrate **202**, an epitaxial structure on the substrate **202** including a layer with an active region **273** at which light emission occurs, upper **274** and lower **272** cladding layers surrounding the active layer **273**, upper and lower faces, edge faces, and electrodes **242**, **244** by which voltage can be applied across the epitaxial structure and the substrate **202**; a distributed feedback grating **275**, **col. 11col. 9, lines 51-56** incorporated with the epitaxial structure comprising periodically alternating grating elements for a selected effective wavelength of light generation from the active region **273**, the grating having a spacing **276** between adjacent grating elements at a position intermediate the edge faces that corresponds to a selected phase shift **276** in the grating, the grating **275** formed and positioned to act upon the light generated in the active region to produce lasing action and emission of light from at least one of the upper and lower faces of the semiconductor laser; and passive distributed Bragg reflector gratings **210**, **230** incorporated with the epitaxial structure adjacent the distributed feedback grating **275** to reflect light back to the distributed feedback grating **275**. Kurobe fail to disclose the distributed feedback grating providing an optical feedback as a second order grating. Kinoshita teach the distributed feedback grating providing optical feedback as a second order grating. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teachings of Kinoshita to obtain a light emitting device which

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oscillates in a single longitudinal mode which is used as a light source in long haul and high bite-rate optical communication systems, **see col. 1, lines 23-42**.

In regards to claims 15-16 and 29-30, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a known material to reflect or transmit part of the laser output, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In regard to claims 19-20 and 33-34, the materials, wherein the active and cladding layers are made of, are well known in the art in order to obtain a laser of a desired wavelength. It would have been a matter of obvious design choice to select the materials wherein the active and cladding layers are made of based on their suitability for which they are to be used, **see claim 15 above**.

In regards to claim 28, Kurobe teaches the stated limitation, **see claim 27 above**.

In regards to claim 31-32, 36-38 and 42-43, Kinoshita teaches the stated limitation, **see corresponding claims above**.

Response to Arguments

10. Applicant's arguments with respect to claims 13-21 and 23-43 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

chj

chj
April 16, 2002

Paul Ip

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